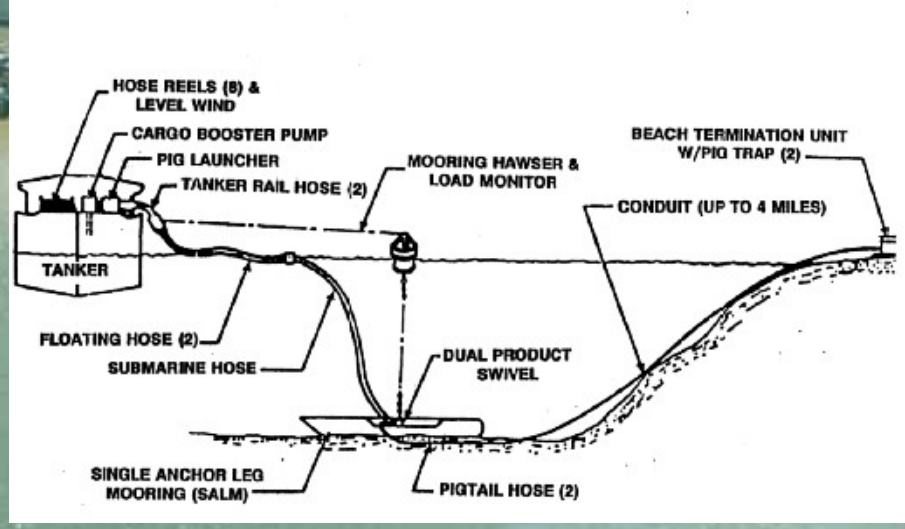
Transformation of DoD's Tactical Petroleum Distribution Capability:

Replacement of the Current Off Shore Petroleum Discharge System by a Turn-key Commercial System

7 February 2005



Off Shore Petroleum Discharge System

(OPDS)

4 Govt owned OPDS tankers 36-43 years old

- –2 forward deployed, 2 in ROS
- –System designed in early 80s.
- –Manpower intensive
- –Very weather dependent

Transformation of DoD's Tactical Petroleum Distribution Capability

- 1997 MSC proposed commercial industry provide a contractor owned contractor operated performance based solution
  - Conducted two Market Surveys with significant commercial interest
- CDR USPACOM msg DTG 060003Z Aug 03
  - Recommended to JCS: MSC commercial OPDS option be pursued
  - Old Requirement: deliver 1.2M gal/day from 4 miles
  - New Requirement: deliver 1.7M gal/day from 8 miles
- JCS directed USTC to pursue and demonstrate the MSC OPDS option.
  - RFP issued 31 Oct 03
  - Tech eval team: JCS J-4, PACOM, DESC, NAVSEA, TRANSCOM, MSC
  - Final offers received 7 Oct 04
- MSC Msg DTG 221918Z DEC 04
  - 3 Options- option for 1 system approved
  - Contract awarded 25 Jan 05

Requirements

1984 Requirement	2003 Requirement
Deliver 1.2M gallons per 20 hour day	Deliver 1.7M gallons per 20 hour day
Deliver fuel from 4 miles off-shore Deliver 2 products from 2 miles	Deliver fuel from 8 miles off-shore Single product
Install in up to five foot waves	Install in up to six foot waves
Install with up 1.5 Knot surface current	Install with up 3 Knot surface current
Install with winds up to 16 knots	Install in wind up to 30 knots
Install over bottom of Mud, Sand or Coral	Install over bottom of Mud, Sand, Rock, Shell or Coral
Deliver product in the following conditions: 40-knot wind 12-foot waves 4-knot current 1.5-knot cross current	Deliver product in the following conditions: 42-knot wind 12-foot waves 5-knot current 1.5-knot cross current 13-20 foot tidal range

Approved Option

- Procure one 8 mile system immediately
  - Annual cost $28.2M
  - Demonstration required for acceptance
- Upon delivery of new system
  - -Transfer two deployed old systems to the RRF (DESC cost $33.7M)
  - -Transfer two of the old systems to the NDRF.
- One RRF OPDS could be layberthed in the far east.
  - Off set loss of one forward deployed system
- Advantage:
  - -provides system which fully meets the PACOM requirement within the funding currently available.
  - -Option exist-second new 4 or 8 mile system.

Chouest Team

- Edison Chouest Offshore (ECO)-lead for 3 company team.
  - Louisiana offshore vessel service company
  - Designs, builds and operates their own vessels.
  - Owns & operates 130 offshore vessels
  - Total of 350 vessels of all sizes, including river tugs and barges
- Tecnip
  - Among top five in field of oil, and gas engineering/construction
  - Specializing in the production and installation of flexible pipe
- Defense Support Systems (formerly Day Zimmerman),
  - Large engineering firm currently operating OPDS training school
  - Provide technical support to NAVSEA on OPDS

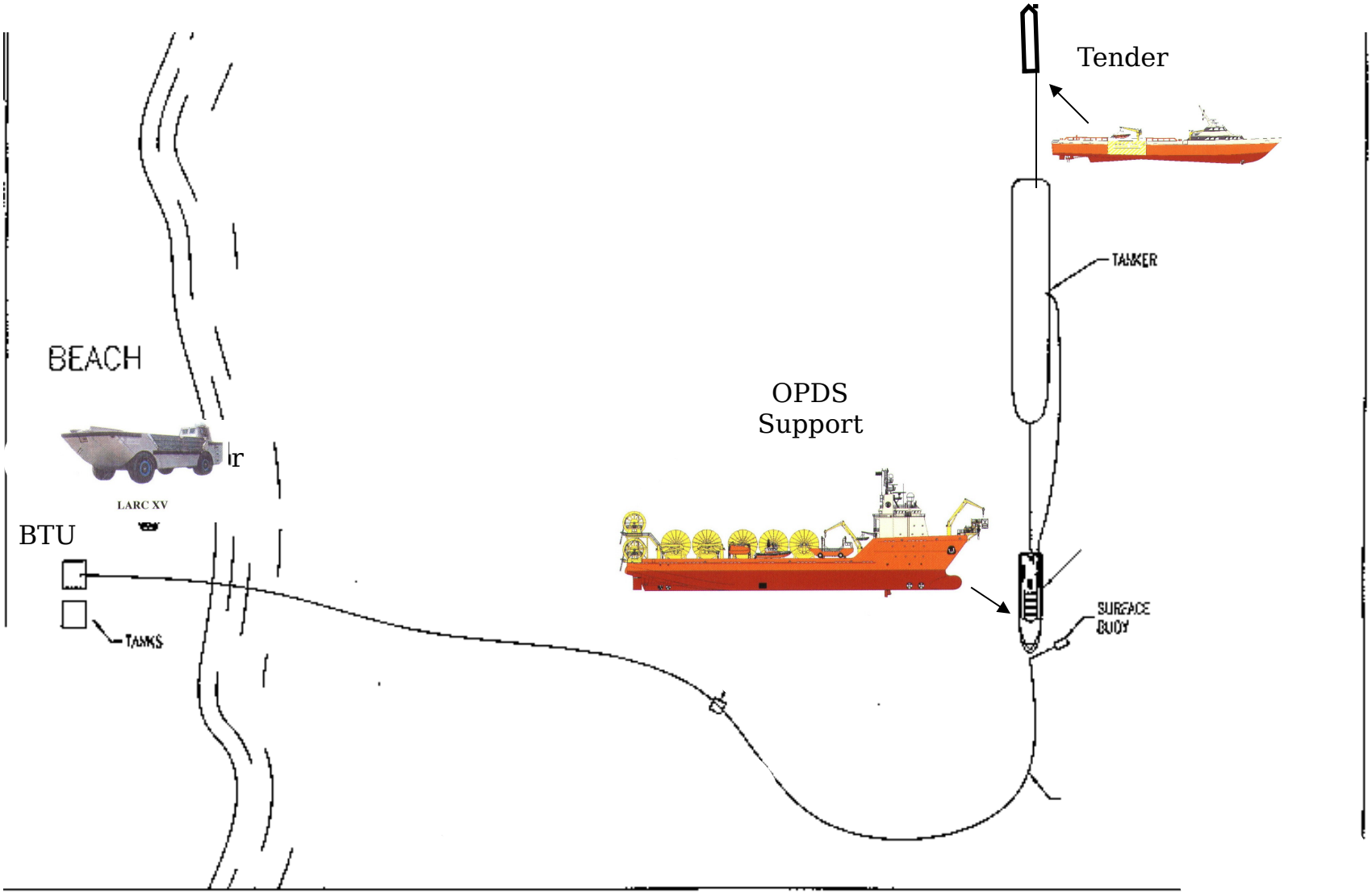
System Strengths

- Dynamic Positioning
  - No anchoring system required
  - Oil field proven technology
  - Support Vessel-DP-2, Tender DP1
  - ECO operates 60 DP vessels world wide
- High Pressure Flexible Pipe
  - Smaller outside diameter-easier to handle
  - Minimize impact from currents
  - 2 mile sections-fewer connections
- Hose is Sink Sink
  - Sits on bottom more firmly
- Tender Vessel
  - Shallow draft vessel with high horse power

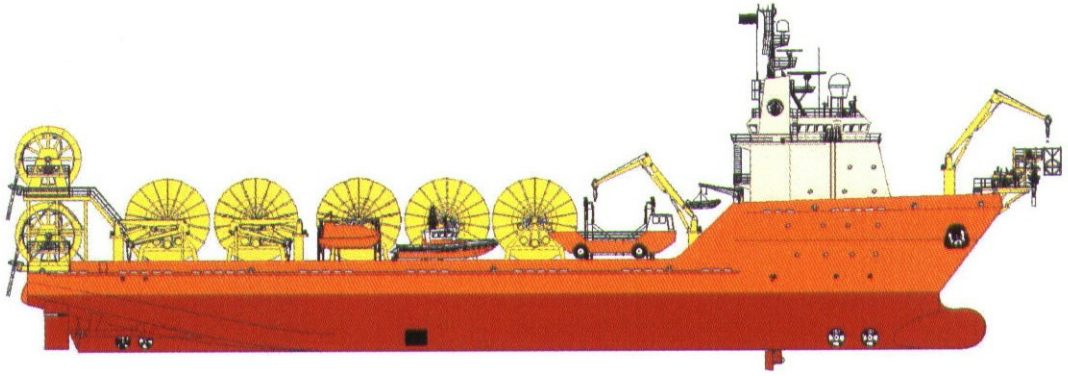
System Capabilities

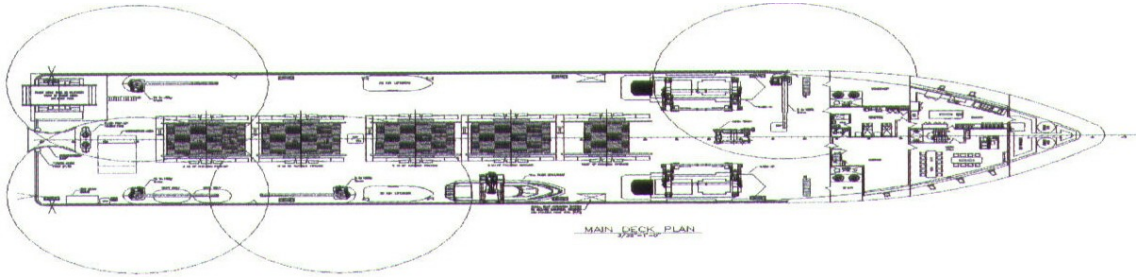
- LARC
  - Deliver BTU and Beach Tractor to beach
  - Large winch to haul conduit ashore
- Support Vessel and Tender each carry RHIB
- Pipe floats for up to 6Kft- if required
- Side scanning sonar on Support vessel
  - Complete route survey
- Mission Specialist Team-8 people
  - 2 Senior permanently embarked
  - 6 Other Mission specialists only for deployments
- 2 system deployments per year

New System Deployment



OPDS Support Vessel

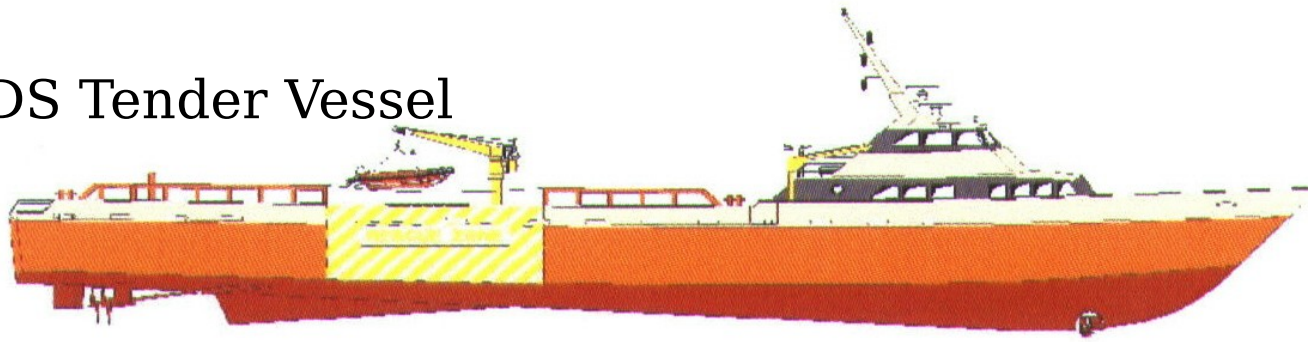




Length	Beam	Displacement	Max Draft	Lt Draft	Max Spd	Op Spd	Crew
348.5Ft	70 Ft	10,796 Tons	27.5 Ft	10.5Ft	17.2Kts	15.6Kts	18

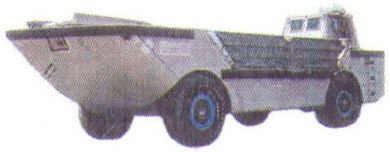
OPDS Major Subsystems

OPDS Tender Vessel

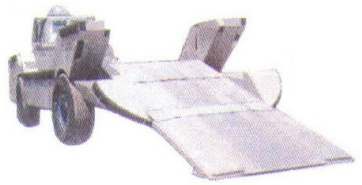


Length	Beam	Displacement	Max Draft	Lt Draft	Max Spd	Op Spd	Crew
165Ft	32Ft	601Tons	10Ft	7.2Ft	23.7Kts	19.7Kts	8

Beach Tractor



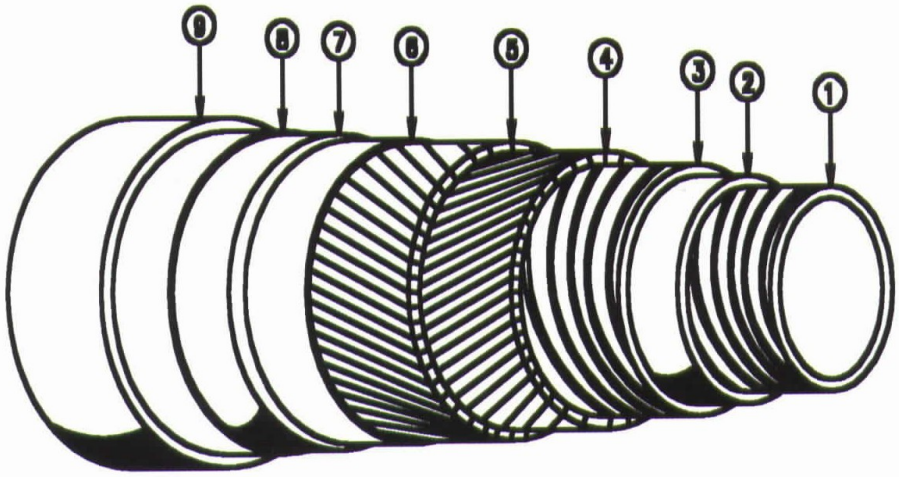
LARC XV



LARC XV with Ramp Extended

Flexible Pipe

Flexible specifications are:



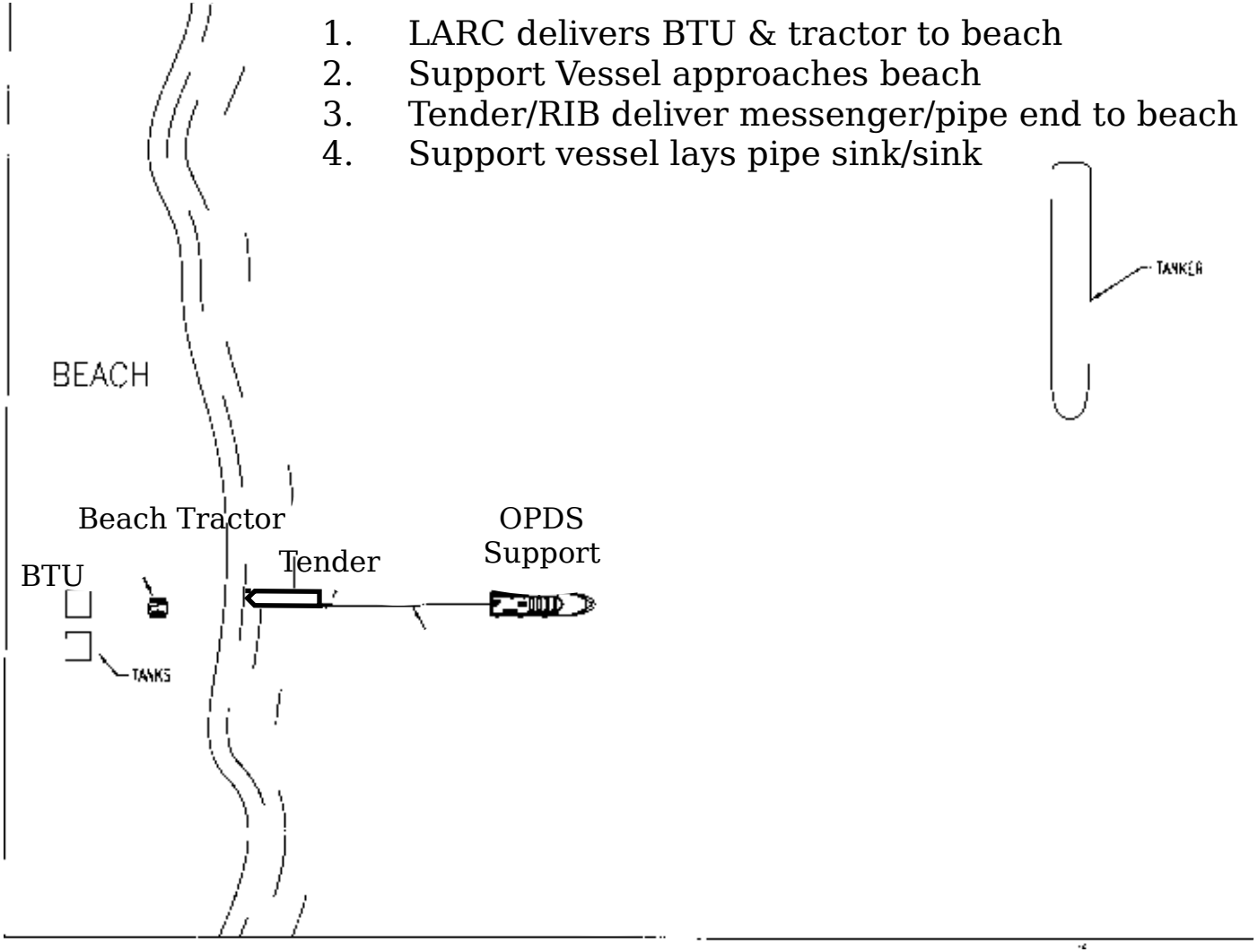
Layer Description

9 Protective Sheath
8 Fabric Tape
7 Polyethylene External Sheath
6 Fabric Tape
5 Second Armor Layer
4 First Armor Layer
3 Zeta Wire
2 Rilsan Pressure Sheath
1 Interlocked Carcass

Characteristics		Imperial
Diameter:	Inside Outside	5.70 in 8.11 in
Weight:	In air empty In sea water empty	36.30 lbf/ft 13.62 lbf/ft
Pressure:	Nominal bursting Hydrostatic collapse	10587 psi 1406 psi
Damaging Pull:	In straight line	351762 lbf
Minimum Bending Radius:	For storage	4.40 ft

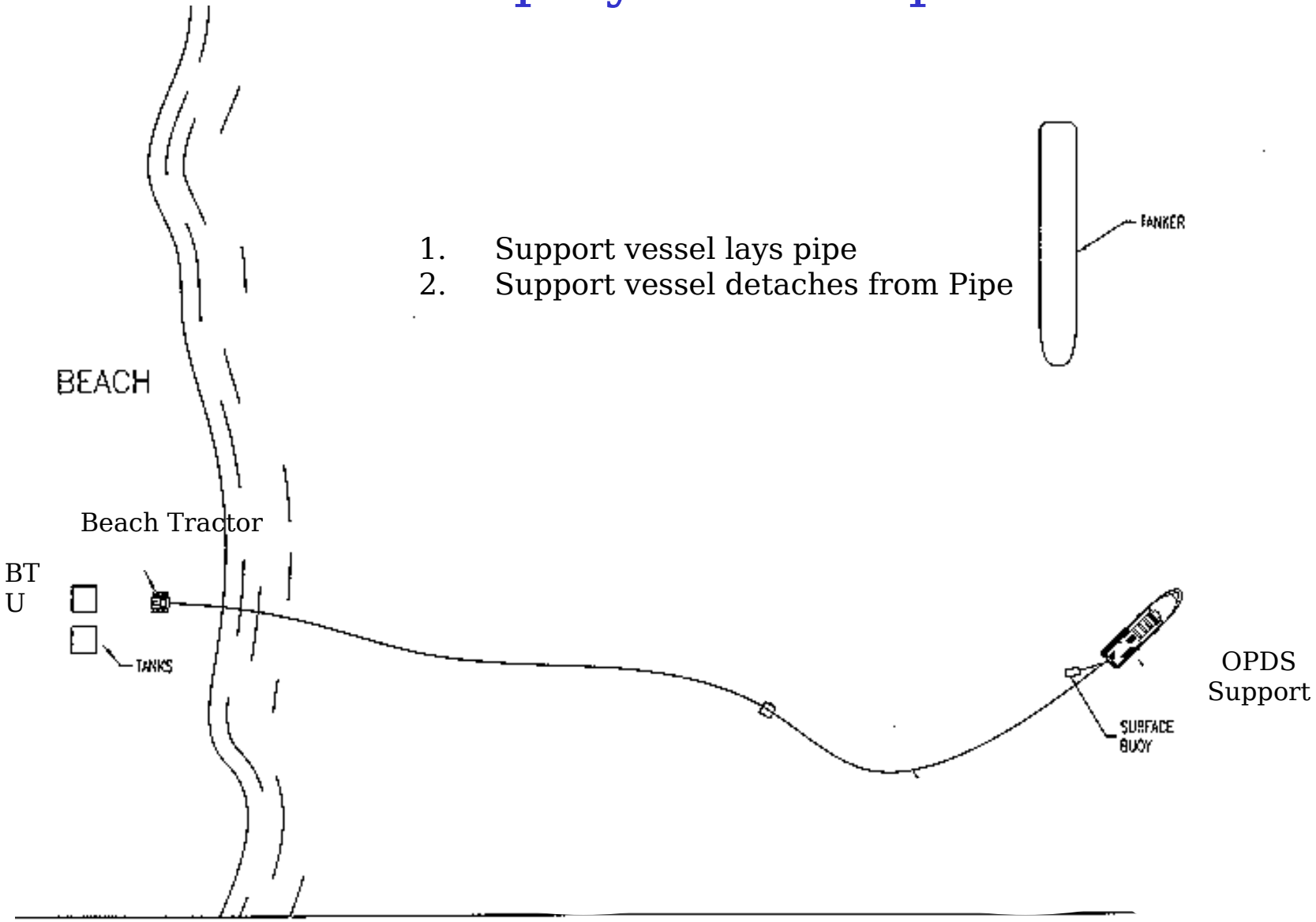
Deployment Step 1

1. LARC delivers BTU & tractor to beach
2. Support Vessel approaches beach
3. Tender/RIB deliver messenger/pipe end to beach
4. Support vessel lays pipe sink/sink



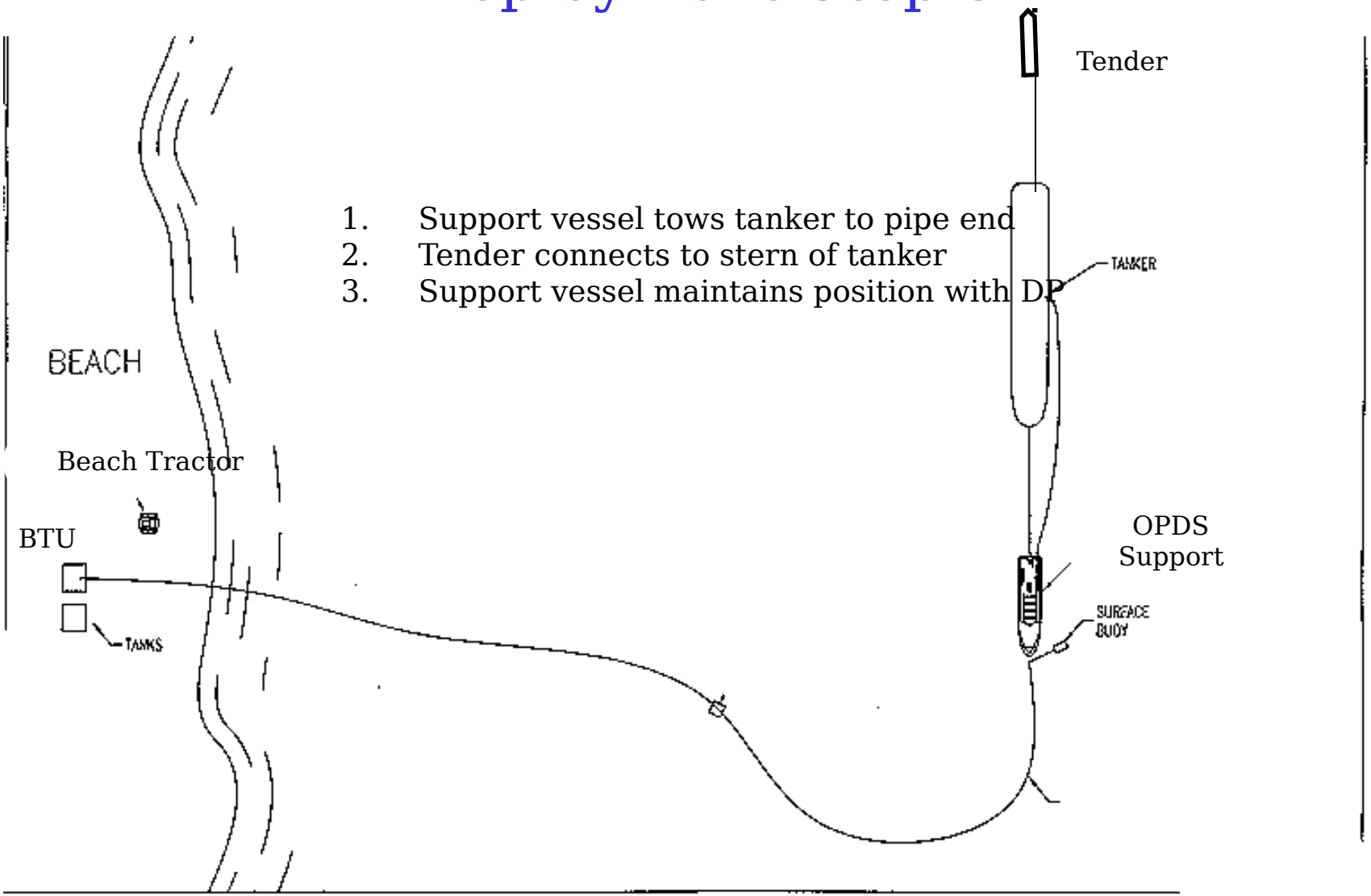
Deployment Step 2

1. Support vessel lays pipe
2. Support vessel detaches from Pipe



Deployment Step 3

1. Support vessel tows tanker to pipe end
2. Tender connects to stern of tanker
3. Support vessel maintains position with DP



Multi-Mission Vessel

- Open ocean tow
  - Vessels up to 63,000 DWT, minimum bollard pull 50 tons.
- Auxiliary fireboat in remote locations.
  - 2,000 GPM of water at 125 PSI.
- Chemical, Biological, Radiological decon support to MSC chartered and government owned vessels.
  - 200 cubic feet of storage for additional equipment
  - Additional government supplied training for 6 crew members.
- High speed Force Protection:
  - OPDS Tender
- Significantly improves readiness of APF
- Reduces Risk
- Funded by APF (Army, Navy Air force)

Considerations

- Replace single skin OPDS tankers with “on call” modern Double hulls
- Separating System from Tanker increases flexibility:
  - Reduce number of tankers
  - Shallow water ops would be feasible.
  - Supply different product as required.
- Commercial time charter
  - Fleet recapitalization without capital investment
  - Leverage commercial industry in training
  - Increase ability to reengineer rapidly
- Two Exercise deployments/yr included in rate.

Conclusion

This performance-based contract is an outstanding example of how to leverage commercial capabilities to meet military requirements without a lengthy R and D process or significant capital investment.

Back up

Civilian versus Military

- **Current OPDS installed by military**
- **OPDS not combat system**
  - Military personnel not required to install
  - OPDS tankers operate < 4 miles from shore by civilians.
- **Nothing militarily unique in this mission**
- **Current system designed by contractors**
  - All military training provided by contractors
- **Civilians do not require special training**